proper length, which is well done, and would form a most useful basis for a larger and more complete work. Economy of "material" and systematic labour are certainly the results of this proceeding.

In concluding this notice, we take pleasure in saying that we have observed on several pages indications that Dr. Hodges is not by any means unacquainted with his subject, and has alluded to the more recent investigations in descriptive anatomy. But we have always held that, if correctness of language and spelling, and clearness of description, are ever necessary to a medical man, it is during his pupilage, when impressions are received that are almost ineffaceable, even though they may be learned to be wrong years afterwards; hence our critical examination of this preliminary work.

The A B C's of the profession should be clear and distinct if it is to be properly respected. W. H. G.

ART. XIX.—*Guy's Hospital Reports.* Edited by SAMUEL WILKS, M. D., and ALFRED POLAND. Third Series, Vol. IV. London, 1858. 8vo. pp. 371.

THE present volume of this always welcome publication contains twelve original communications, eight wood-cuts, and fourteen lithographic plates. The following is an analysis of its contents:—

I. *Case of Epithelial Cancer of the Œsophagus, in which Gastrotomy was performed.* By S. O. HABERSHON, M. D.

II. *Description of the Operation of Gastrotomy.* By J. C. FORSTER.

These two articles, as they relate to the same case, for the sake of simplicity and brevity, will be considered conjointly. They present the detailed history of the symptoms observed in a patient affected with epithelial cancer, which, from its position, interfered both with deglutition and respiration, and of an operation performed for the purpose of establishing an artificial opening through which food might be introduced directly into the stomach.

It is well to state here that when they submitted their patient to the operation, neither Dr. Habershon nor Mr. Forster was aware that it ever had been practised before. Some of our readers must have remarked in Dr. Habershon's recently published treatise on diseases of the alimentary canal,[1] that the propriety of forming a gastric fistula in cases of organic stricture of the œsophagus is therein argued in a manner that shows the author not to have been aware that an operation for the formation of one had ever been performed. From its extreme rarity, we will give the whole history of this case, as briefly as possible, and using, so far as we can, the words of the original communications.

A man, 47 years of age, of ordinary stature, entered the hospital in the beginning of October, 1857, under Dr. Habershon's care, labouring under considerable dyspnœa. Examination showed the pulse compressible, but regular; the heart's sounds normal; the respiratory murmur indistinct, with some sibilant râle. After a short time he began to complain of severe pain in the throat during coughing, and in a few weeks pain was also produced in swallowing, especially when solids were taken. In December deglutition had become very difficult, so that liquids only could be taken. In February, on examining the throat, Mr. Forster detected, for the first time, a rounded tumour, situated below the epiglottis, towards the right side, and evidently obstructing the commencement of the œsophagus. In March the voice had become more feeble, and deglutition had become so difficult that nutrient injections were had recourse to. The respiration had now become so difficult that, on the second of March, tracheotomy was performed, the incision being made as low down as possible. The operation, however, did not afford any relief; the trachea appeared flattened from behind, and the patient could not bear the tracheal tube inserted; when it was attempted, he appeared to be quite incapable of breathing. On the 25th of March the patient appeared to be sinking, and the rectum ejected the enemata almost at once. Under these circumstances, the question presented itself, whether life was to be allowed gradually to die out, or whether an attempt was to be made, by any other means, for the introduction of food. Dr. Habershon thus discusses this question:—

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[1] Pathological and Practical Observations on Diseases of the Alimentary Canal, Œsophagus, Stomach, Cæcum, and Intestines. London, 1858. P. 28.

"Three modes of relief suggested themselves: 1st, the forcible introduction of an œsophageal tube; 2d, opening the œsophagus in the neck; and 3d, opening the stomach. In reference to the first, there was evidence of a growth at the commencement of the œsophagus; and the trachea appeared partially compressed, as shown in the operation of tracheotomy. The disease in the throat was probably of the form of epithelial cancer, and the passage of a bougie must have been constantly repeated. The great irritation and coughing produced by attempting to swallow showed that the epiglottis was extensively ulcerated; *or* that there was a connection between the œsophagus and trachea, which would render the passage of a bougie very dangerous. In some cases of cancer of the œsophagus, a bougie has been passed into the pleura, and led to speedy death; and probably the passage of a bougie could not have been effected; this decided against the first proceeding. As to the second—opening the œsophagus—the most frequent seat of cancer in that tube being opposite to the root of the lung, about the third dorsal vertebra, and consequently beneath the position at which the canal could be opened, would have made the operation a very formidable, dangerous, and useless one. In reference to the third—opening the stomach—this alone appeared to be the operation which could possibly relieve the patient. Wounds of the stomach, as that of Alexis St. Martin, the cases recorded by Mr. South, those by Dr. Murchison, &c., showed that life could be continued after fistulous communication had been thus made. The operations on the lower animals proved that it could be performed with some probability of success; such an operation would give a chance of prolonged life where death was certain; and where the peritoneum was healthy, there was less danger than in abnormal conditions of that membrane. If life were prolonged only for a short time, and food introduced, there would be relief to the distressing thirst and the fearful sense of starvation: and lastly, it was evident that the patient was dying from inanition rather than from disease, nutrient enemata being refused. On the other hand, however, I felt that the disease was probably of a cancerous character, and would sooner or later terminate life; that the operation was a hazardous and uncertain one; and that life might possibly be continued for a few days by a small portion of the injection being retained."

After carefully weighing all these facts, and calling in the assistance of Mr. Forster, opening the stomach was decided upon. The operation is minutely described in the second communication. An incision was made through the abdominal parietes in the course of the left linea semilunaris, commencing between the eighth and ninth ribs, and carried downwards to the extent of three and a half inches. The peritoneum was divided the whole length of the wound, upon a director, and the stomach thus exposed; it was then hooked up, with a tenaculum, to the abdominal parietes, and sewed thereto by an uninterrupted suture, with a strong silk ligature. After the first two stitches had been put in, the organ was opened by dividing what was included between the two portions of the tenaculum; the opening thus made was about three-quarters of an inch in length, and was afterwards slightly enlarged. In making the stitches, the needle was passed one-third of an inch within the stomach, so as to get a good hold, and as much as possible of the abdominal walls were included. As the opening in the stomach was much less than the external wound, the remaining part of this was brought together with an uninterrupted suture, the divided peritoneum being left untouched. An elastic tube was at once introduced into the opening, and milk with egg was injected through it into the stomach. In this way, in the course of twenty-four hours, six eggs, beaten up in twelve ounces of milk, were given in small, divided doses, with four ounces of rum, the quantity introduced each time being two ounces. The patient, however, began to sink, and, notwithstanding the free use of stimulants, he died about forty-four hours after the operation. Dr. Habershon expresses his belief that if the operation had not been performed, death might have taken place as speedily, if not more so, and that it relieved the thirst and sense of starvation, and rendered the patient more comfortable. "Under these circumstances," he says, at the close of his communication, "it is urged that, if a favourable case be presented, the same operation be performed, but without waiting till life is almost extinct."

At the *autopsy* of the patient, the epiglottis was found healthy; at the posterior surface of the cricoid cartilage there was a growth connected with the mucous membrane, about a quarter of an inch in elevation, and extending from side to side, soft and slightly injected; passing downwards, there was irregular ulceration, and towards the trachea destruction of all the coats of the œsophagus; an opening one-sixteenth of an inch in diameter existed between it and the trachea; below the ulceration the canal was so much contracted, by infiltration into the surface of the mucous membrane, that a probe could only be passed after death; *this constriction was situated at the level of the first bone of the sternum;* the rest of the œsophagus was healthy. One or two glands in the neck were infiltrated and diseased. In the upper part of the right lung there were numerous lobules of iron-gray consolidation, and in the lower lobe there were numerous gray tubercles. The lower lobe of the left lung was much congested, and one or two lobules were softened and breaking down, from acute changes, probably a very short time before death. There was no evidence, the report says, of any cancerous disease affecting any part except the œsophagus and one or two adjoining glands. It is to be regretted that no microscopical examination was made of those tissues said to have been affected with cancerous disease; or, if any was made, that no mention is made of it. In a case resembling in very many respects the one under notice, and which we witnessed ourselves, and have reported (see *Clinical Lectures on Surgery*, by M. Nélaton, p. 50), the stricture was owing to a large mass of tubercular matter that had been deposited between the trachea and œsophagus, and had undergone the usual changes witnessed in such deposits. In connection with this subject, it may be interesting to mention that, some years ago, in making some dissections for the purpose of discovering why strictures of the œsophagus should always be situated near the upper part of the sternum, we invariably found a number of lymphatic glands lying between the œsophagus and the trachea, just in that region.

An operation similar to the one above described has been performed twice before; in both instances by M. Sédillot, of Strasbourg. Mr. Forster refers to them very briefly at the end of his communication: he was not acquainted with them at the time of performing the operation himself. M. Sédillot calls the operation *gastrostomy* (*stomach-mouth*). The first time he practised it, which was in 1849, he made a crucial incision, about an inch and a half in diameter, over the rectus muscle, two inches and a half below and to the left of the xiphoid appendix. Dividing the rectus muscle and the peritoneum, and holding back the four flaps by the aid of the superficial and upper layers of the epiploon, he drew out a portion of the great curvature of the stomach, and making a puncture into it, he introduced a double canula, each tube having a projecting edge bent at a right angle, in order to keep the stomach against the walls of the abdomen, and also to retain the instrument at the external wound. Almost immediately, however, the stomach was drawn forcibly backwards; the canula followed, and was dragged into the abdomen; the patient died in twenty-one hours. The second time he performed the operation, which was in 1853, he modified his first proceeding; the incision was made extending from a spot two finger-breadths from the median line to less than an inch from the edge of the false ribs on the left side. After opening the peritoneum, the stomach was drawn up and fastened to the abdominal walls by the aid of sutures, passed through the skin and the peritoneal and muscular coats of the stomach, the opening of which was delayed until adherences should have formed between it and the abdominal walls. Two hours afterwards, during a violent attack of cough, the stomach was dragged into the abdomen. The threads of the sutures were removed, and a portion of the stomach, pulled out, was inclosed in the forceps of Assalini, with the hope of obtaining adherences, and afterwards an opening, from the mortification of the part inclosed by the forceps. By the fifth day solid adhesions were established, the gangrene was complete, and the mortified part was cut off by the scissors. Nutritive injections were then thrown in through the fistula, but at the expiration of ten days the patient died of peritonitis.

In performing this operation of gastrostomy, the plan of waiting to open the stomach until adhesions have been formed between it and the walls of the abdomen, is certainly advisable. The mistake made by M. Sédillot was in not including the whole thickness of the wall of the stomach in his sutures. It seems to us, however, that it is an operation that should never be performed in cases such as that related by Mr. Habershon, where the stricture of the œsophagus is owing to organic degeneration, and when the general condition of the patient is so miserable. It could only be authorized when the stricture is caused by cicatrices, the effect of the action of hot liquids or of chemical agents, and the patient has no other concomitant affection.

These communications are accompanied by four plates, showing the position and extent of the external incision, the position of the stomach, the interior of the stomach at the opening, and the growth in the œsophagus.

III. *Pathological Observations.* By Samuel Wilks, M. D.

These are, as we learn from a few preceding remarks, the first of a series of pathological observations on subjects of interest, which the author has made by carefully reviewing the reports of nearly 2000 post-mortem examinations. The remainder of the series, from want of space, has been left to a future occasion for publication. The first chapter is upon Cancer and New Growths.

The last number of *Guy's Hospital Reports*—a notice of which was given in the April number of this journal, for the past year—contained a valuable communication from Dr. Wilks on the specimens of diseases of bone, contained in the Hospital Museum, with reference chiefly to the question of malignancy. We have been considerably disappointed at finding the present communication not to be one of the same kind. In his former communication Dr. Wilks confined himself, almost entirely, to stating facts, and then adding the deductions he would himself be disposed to draw from these facts. In this one, on the contrary, he indulges freely in fanciful speculations on great pathological questions, here and there adding thereto a fact that suits the particular hypothesis at the moment in favour.

Dr. Wilks believes that in every new growth the question to be asked is not so much whether it is malignant or not, as what is its degree of malignancy. In every case of adventitious growth or deposit in the body, two causes are in operation, one local, the other constitutional. The first cause alone in operation has a tendency, in his opinion, to the formation of a tissue allied to the healthy structures, whilst the latter has simply a power for the production of the simplest elements, as seen in malignant growths; when combined together we have, as one or the other cause predominates, all the intermediate varieties between extremely benignant and extremely malignant. To discover how much one cause is in operation and how much the other, Dr. Wilks believes to be the clue to the whole question of new growths. When, for instance, the local cause does not act from any reason, when plasma is thrown out, "the tendency is to the production of cells such as existed in the embryo preceding the formation of the tissue, and, therefore, if such embryonic cells spring up and continue to grow in the perfected body, we have a cancer; a cancerous tumour being simply a mass of embryonic cells." "A woman of middle age receives a blow on the breast, a slow growth springs up, composed of nucleated cells—this is cancer. Let the same local cause be in operation in a young woman of comparatively healthy constitution, when the procreative powers are in full force, and then the blastema or crude formative material supplied by the blood is disposed to assimilate itself to the natural structure, and the growth resembles, though imperfectly, the original gland; we have thus a mammary tumour or adenocele."

The views of Dr. Wilks on the subject of new growths are to a considerable extent novel, and, at all events, quite ingenious. If they should prove to be correct, however, it would be to us another example of the fact that *le vrai n'est pas toujours le vraisemblable.*

The second article is on the subject of Acute and Chronic Diseases. As the result of his observations, Dr. Wilks believes, that disease of the various parts of the body is, as a rule, chronic, and that the acute affections are merely terminations of these, or are set up by them. This article is very short, only occupying four pages, and the subject is not illustrated by examples.

The third article is on the Relative Importance of Disease of the Aortic and Mitral Valves of the Heart. The different opinions respecting the relative severity and importance of these two lesions are explained by Dr. Wilks as owing to the facts that the existence of the aortic lesions is dated from the commencement of symptoms connected with them, and of mitral disease from an inflammatory attack which may have occurred many years before, and that the duration of the severe symptoms is much greater in disease of the aortic valves than in disease of the mitral.

The fourth article is upon Contre-coup. As the result of his observations, Dr. Wilks states, that fracture by contre-coup never occurs, and as to trephining the cranium on the side opposite to the one upon which the blow was received for the purpose of affording an issue to effused blood, he declares that he has never met with a case on the *post-mortem* table where an operation on the side opposite to that injured could possibly have given any relief.

The fifth article is on the subject of Chronic Rheumatic Arthritis, the disease so fully and ably treated of in the recent publication of Dr. Adams (*A Treatise on Rheumatic Gout, or Chronic Rheumatic Arthritis of all the Joints*, by Robert Adams, M. D., Surgeon to the Richmond Hospital, London, 1857). The museum of Guy's Hospital contains thirty specimens of the disease as it affects the hip-joint, nine of the disease of the shoulder, five of the elbow, but scarcely any of the other joints, together with four or five doubtful specimens of the disease of the vertebra and the pelvic articulations. As the connection of the disease with rheumatism is not established, Dr. Wilks would much prefer to call it simply chronic arthritis, "for the relation between it and acute disease of the joints is the same as between all other acute and chronic disease."

IV. *On the Operation of Opening the Urethra in the Perineum.* By THOMAS BRYANT.

With the laudable design of giving some new information for the settlement of this much vexed question, of opening the urethra in the perineum, Mr. Bryant has taken up the subject in order to illustrate it by the cases that have occurred at Guy's Hospital. These cases are eighteen in number, and the conclusions he draws from them are as follows:—

"1. In uncomplicated retention of urine from organic stricture the operation of opening the urethra in the perineum is not required, the more simple and safe one of puncturing the bladder through the rectum being preferable.

2. When complicated with extravasation of urine from any cause, it should be performed at once, and the stricture, when present, divided, if possible.

3. In laceration of the urethra from injury, when a catheter cannot be passed, the urethra should be opened.

4. And also when the above injury is associated with pelvic mischief.

5. Strictures are occasionally met with which are impermeable, and urethras which are obliterated.

6. That in cases of organic stricture, where the passage of a catheter is possible and not difficult; when it does not produce either any injurious or painful constitutional or local disturbance, and when, after dilatation of the stricture, an occasional passage only of the instrument is required to maintain an open channel, no other surgical means can be called for.

7. That cases of stricture do occur occasionally which are so exquisitely sensitive, and in which the passage of a catheter, however skilfully performed, is followed by such severe constitutional and local disturbance, as to produce more harm than good; and *others* which are relieved by means of a catheter, and are even fully dilated, but which have a tendency to contract again immediately upon the omission of the treatment; in such cases the operation of 'external division' (this is, with a staff in the urethra) is most valuable.

8. That the majority of cases of what are called impermeable strictures may be rendered permeable by constitutional treatment, but that some are undoubtedly impermeable; in such cases, the operation of 'perineal section' (this is, opening the perineum without having a staff in the urethra) is of value.

9. When the urethra is obliterated, the operation of 'perineal section' may occasionally be demanded, particularly when associated with perineal fistula.

10. That the worst and most intractable forms of stricture are the result of injury, and in these cases the operation either of 'external division' or 'perineal section' is of great value.

11. That in boys the operation is not so successful as in adults, although no better can be suggested."

V. *On Ophthalmostasis, with an account of an Improved Method in Extraction of the Cataract.* By JOHN F. FRANCE.

In this communication, after giving an account of many of the modes used for fixing the eye, Mr. France advocates the use of artery forceps. He applies their extremity with rather firm pressure a little beneath the inferior margin of the cornea, and clasps securely a somewhat broad portion of conjunctiva and of the submucous fascia. For the *idea* of using the artery forceps, he acknowledges his indebtedness to Desmarres, who mentions their use, but prefers other instruments.

Two plates accompany this paper, showing the instruments referred to therein. It is worthy of remark that no mention is made of the ophthalmostat which acts by the pressure its plate exerts in the oculo-palpebral cul-de-sac at the external angle of the eye, thus fastening the conjunctiva against the bone and making it impossible for the eye to turn inward.

VI. *On the Existence of Copper in Organic Tissues.* By WILLIAM ODLING, M. B., F. C. S., and AUGUST DUPRÉ, PH. D.

This communication, in a medico-legal point of view, is one of very great interest. While some very distinguished toxicological and physicological chemists affirm that whenever copper occurs in animal or vegetable tissues or fluids, its presence is to be regarded as exceptional, or abnormal, or accidental, others equally eminent maintain that copper is a natural and constant constituent of living organisms. From the experiments made by the authors of this paper, we think it must be positively concluded that copper does very frequently occur in certain vegetable and animal tissues, particularly in those of the kidney and liver, and that in the last named organ especially it sometimes presents itself in very considerable quantity.

VII. *A Collection of several Cases of Contusions of the Abdomen, accompanied with Injury to the Stomach and Intestines.* By ALFRED POLAND.

From a variety of sources Mr. Poland has collected as many as sixty-four cases in which different portions of the alimentary canal were injured by contusion. They are all arranged in order, as the injury affected the stomach, the duodenum the jejunum, the ileum, the cæcum, and the colon, and the most important points in each case are briefly related.

In three of the cases, the ruptured bowel occurred in persons the subject of hernia, but independent of any hernial mischief. A case of this kind would demand the utmost attention and circumspection, not only as to the question of diagnosis, but as to the treatment to be adopted. In one of those related by Mr. Poland, a woman, afflicted with a femoral hernia, was struck by her husband on the abdomen, and she died in twelve hours. Before her death, however, a surgeon reduced the hernia. At the autopsy the small intestine three feet from the stomach, and exactly opposite the seat of the blow, was found nearly torn across. The husband was accused of having caused her death, and the defence set up was—1st. That the rupture occurred in the hernial sac, and that the rent in the bowel was caused by the efforts of the surgeon in reducing the hernia; and 2d. Supposing this not to have been the case, that the rupture was spontaneous and accidental from the giving way of a diseased bowel. The arguments against these theories were considered conclusive, and they have thus been summed up:—

1. The pain came on immediately after the blow, and before the reduction of the hernia.
2. The ruptured bowel was at a considerable distance from the sac.
3. No inflammation or fecal matter in the sac.
4. Distinct external mark opposite to where the ruptured intestine lay.

5. No appearance of ulceration of the mucous membrane.

The husband was therefore found guilty of the death of the woman.

Another class of cases are those in which there is contusion of the intestine while in the hernial sac. Four cases of this kind have been reported in a former number of *Guy's Hospital Reports*, by Mr. Aston Key, and to these Mr. Poland has added eleven more. Of the whole fifteen cases thus assembled, in thirteen the gut was ruptured by the injury, and all died; in two the bowel was bruised and sloughed, and recovery took place. These two cases of recovery show the importance of laying open a hernial sac, after a blow thereon, whether there be intestine down or not, provided there be severe local or constitutional symptoms. In no case of the kind should reduction ever be attempted.

In drawing attention to this class of injuries Mr. Poland states that he "was mainly influenced by the fact that much injudicious and careless (we might almost say reckless) treatment has been resorted to. In the numerous instances here collected, we have sad specimens of the action of purgatives in hurrying the unfortunate patient to a more speedy and inevitable death."

The treatment in all such cases should be perfect rest of the body, and total abstinence from food or drink for forty-eight hours; the occasional use of ice, in small quantities, and at prolonged intervals might perhaps be permitted. Opium should be given to quiet the system and to prevent peristaltic action. In addition Mr. Poland advises the free and unsparing use of leeches, so soon as peritonitis sets in, to be replaced by hot fomentations, to be repeated with judgment and without fear.

VIII. *Cases of Paraplegia.* Second Series. By WILLIAM GULL, M. D.

In this second series of cases of paraplegia—the first, which contained sixteen cases, was published in the Report for 1856—the histories of seventeen cases are given, with the *post-mortem* examination of each, and remarks by the author. These cases are, perhaps, most particularly interesting from the aid afforded by their pathology for the solution of some of the most hidden questions in physiology; the instruction given by these experiments made by nature is, in our mind, more trustworthy than that extracted from those instituted by the most skilful experimental physiologists.

From Case XVII., Dr. Gull says that it may be concluded with certainty that the spinal cord may have its functions impaired, and even lost, and that suddenly, as far as the power of motion is concerned, without any distinct amount of anatomical lesion. He urges with earnestness the investigation of the nervous substance by other means than the microscope, and declares his belief that Dr. Stankey's observation on the variable specific gravity of the brain lets in some light in this direction. He believes that "it is from an increased knowledge of 'atomical' as distinguished from 'anatomical' conditions that we may hope for future advances in nervous pathology." Notwithstanding such statements at the commencement of his communication, Dr. Gull, in all the other cases, invariably attributes to alterations found by the scalpel and the microscope the symptoms observed before death, and would not listen with patience, probably, to an objection which these same statements would justly allow us to make to such a proceeding, namely, that these same symptoms might have been owing, not to these anatomical lesions, but to certain atomical changes in other, and apparently healthy, portions of the nervous system. We have ourselves no desire to urge such an objection, for we do not coincide with him at all in this peculiar belief.

In Case XIX. the prominent symptom was a total want of power to regulate the muscular contraction. The affection of sensation was limited to numbness, and formication of the hands and feet. The autopsy showed that the posterior columns were atrophied throughout their whole length. Brown-Séquard found in his experiments that when the posterior columns were destroyed for a limited extent, hyperæsthesia is produced below the seat of injury; when, however, they are destroyed throughout their whole length, instead of hyperæsthesia there is loss of sensibility to some degree. The effect upon the muscular movements is in accordance with the theory of the use of the posterior columns proposed by Dr. Todd, that they "propagate the influence of that part of the encephalon which combines with the nerves of volition to regulate the locomotive powers, and serve as commissures in harmonizing the actions of the several segments of the cord."

In Case XVIII. the symptoms were numbness and weakness of the legs for several months, sensation not being impaired. At the autopsy the gray substance of the cord was found atrophied, and the posterior columns in a state of chronic inflammatory degeneration.

In Case XIX. there was paraplegic weakness of the lower extremities, characterized by a want of control over the contraction of the muscles; the voluntary muscles, generally, were emaciated. After death, chronic inflammatory degeneration of the posterior columns of the cord, throughout their whole length, was discovered; the disease was strictly limited to the posterior columns.

In Case XX. there was paralysis of both seventh nerves; the upper extremities were weak, the lower nearly completely paraplegic. The onset of the symptoms in this instance was acute. At the autopsy the substance of the cord in the cervical and dorsal regions was found to be somewhat softer than natural, but no other unequivocal change was discovered by the unassisted eye or by the aid of a common lens. On hardening the pons Varolii, medulla oblongata, and cord, and preparing sections of these parts, it was seen that in the anterior part of the commissure, throughout the length of the cord, but principally in the lumbar and superior cervical regions, and throughout the structure of the medulla oblongata, but chiefly at its superior part, there were exudation-cells scattered interstitially amongst the tissue. These cells were recent; they had not undergone fatty degeneration.

Case XXII. is interesting as showing that the substance of the cord may receive an injury through violent muscular exertion, whilst the surrounding tissues escape. The paraplegia, which was complete, supervened two days after a violent exertion in lifting a heavy weight. There was no injury of the membranes, ligaments, or bones of the spine, but opposite to the fifth and sixth dorsal vertebræ the cord was softened through all the columns into a thick, greenish, muco-puriform fluid, with a tinge of brown, which, examined by the microscope, was seen to consist of disintegrated nerve-tissue, with a few irregular collections of granules. The greenish and brownish tints of the softened parts were owing, probably, to blood-colouring matter.

In Case XXIII., after direct violence to the posterior cervical region, the legs, the left arm, and the sphincters were paralyzed; loss of sensation, which followed the injury and lasted for a few hours, gave place to hyperæsthesia, the sensation in the most distant parts returning first. The membranes of the cord were found healthy; opposite the fourth and fifth cervical vertebræ the substance of the cord was contused. On section, there was found ecchymosis of the posterior horn of gray matter on the left side, and of the adjacent part of the lateral and posterior columns. There were also other limited spots of ecchymosis on the right side, one in the right posterior column, and one in the anterior cornua of the gray substance. The development of hyperæsthesia in this case is in accordance with the experiments of Brown-Séquard, who has shown that injury of the posterior cornua of the gray matter is followed by hyperæsthesia of the parts below.

In Case XXIV. the patient was paraplegic in both the upper and lower extremities, having become so several hours after a fall backwards from a moderate height; there was loss of sensation in the paralyzed parts. After death an effusion of blood was found outside of the theca vertebralis in the neck; the cord itself was uninjured, the extravasation came from injury to the lower part of the body of the fourth vertebra, which had been fractured and the intervertebral substance torn.

An interesting phenomenon was observed in this case, one to which attention was directed in an interesting paper in the last number of this journal, entitled "Remarks on some Affections of the Spinal Column," by Dr. Packard, namely, the increase of temperature of the surface of the body. The skin, it is mentioned, became "intensely hot," and, at the same time, "the ribs scarcely moved in inspiration." To explain the phenomenon, Dr. Packard is inclined to believe that by the injury to the cord "a check is removed from some heat-generating agent —possibly the sympathetic system of nerves—which, no longer controlled by the regulating influence of the cerebro-spinal axis, carries on its functions to an inordinate degree." (*Loc. cit.*, p. 65.) Another supposition which we venture to make, though with some hesitation, is this, that the nerve-force generated by the nervous system in its disturbed condition may be converted rapidly into heat. We know that electricity, under certain circumstances, may be thus converted, and electricity and nerve-force, if not identical, are very similar in many respects.

Case XXVII. has been recorded in order to afford an instance of how lesions of the cord are occasionally attended with an affection of the joints, not to be readily distinguished from that which occurs in acute rheumatism. In this instance the patient had received no injury, and she recovered, so that no *post-mortem* examination was made. The case might, we think, be very properly considered as showing rather how in acute rheumatism the spinal cord is occasionally affected. The patient had, in addition to redness, pain, and swelling of the larger joints, a white, furred tongue, hot skin, profuse perspirations, having an acid smell, and a systolic murmur over the left ventricle.

What Dr. Gull says of the effects of strychnia, when administered in affections of the spinal cord, is worthy of attention. His opinion in regard to it coincides, we know, with that of the physician in this country who has had the greatest experience in the treatment of diseases of the nervous system.

"The therapeutical agency of strychnia in organic lesions of the cord has yet to be proved. Judging from its effects, we should say its direct operation on the tissue was the very reverse of nutritive or reparative. If function is, as there can be no doubt, the effect of a mode of disintegration, agents which directly increase function must produce a disintegrating action. If this be a sound inference—and experience leads to the same conclusion—strychnia has but a limited therapeutic application in paraplegic affections. It is well known that immediate and striking effects can be produced by the drug, but these are often followed by hopeless bankruptcy of the spinal power."

This communication is accompanied by four exquisitely executed plates, representing magnified transverse and longitudinal sections of the diseased portions of the spinal cord in the various cases.

IX. *A Case of Pharyngotomy for the Extraction of a Foreign Body, with some Remarks.* By EDWARD COCK.

The foreign body lodged in the pharynx in the case whose history is given in this communication was a gold plate, shaped to correspond with the hard palate behind the incisor and bicuspid teeth, and holding a false central incisor tooth. The extreme length of the plate was an inch and five-eighths, while a line drawn from the extremity of the false tooth to the other edge of the plate measured exactly one inch. It was arrested in the gullet directly behind the cricoid cartilage. A pair of strongly-curved forceps detected the plate, but it could not be grasped, nor could it be moved from its position. With the hope that its position might possibly be altered by the action of vomiting, a pint of milk was conveyed into the stomach by a flexible catheter, and then half a drachm of sulphate of zinc and a scruple of powdered ipecacuanha administered. These emetics did not, however, excite even a sensation of nausea, and no others were tried. Some futile attempts were afterwards made to pass a looped wire round the plate, and also to manipulate with a flexible tube from the extremity of which a pair of forceps could be projected. Four days having now elapsed, and the patient beginning to feel seriously the want of rest and nourishment, it was determined to cut down and open the gullets.

The incision was made on the left side, and the operation was performed in the way usually advised in treatises on operative surgery. The gullet was opened by cutting against the most prominent part of the foreign body, which proved to be the false tooth. After the operation, the external wound was dressed without any attempt to bring the edges together, and for three weeks the patient was fed through an œsophagus-tube; at the expiration of another week the external wound had closed, and his recovery was complete; at least, with the exception of some modification in the tones of his voice, the result, in all probability, of injury done to branches of the recurrent laryngeal nerve during the operation.

In addition to his own case, Mr. Gull relates briefly the histories of seven others, in which œsophagotomy has been performed. Five of these were successful, while in two death followed the operation. In one of the fatal cases, where the patient died in two days from collapse, the foreign body, a portion of bone, was swallowed during the operation, and found after death in the rectum.

The operation performed in this case by Dr. Gull, though the one usually recommended when opening of the gullet is thought indispensably necessary, is not the one we should prefer ourselves. It is one that presents very considerable difficulties, on account of the depth to which the dissection must be carried, and the important vessels and nerves in the neighbourhood. It is, besides, very difficult to distinguish the muscular fibres of the œsophagus, when they have lost their normal appearance from the inflammation occasioned by the presence of the foreign body, and covered by the blood which flows abundantly. The following operation, which has been recommended by very distinguished authority, appears to us to offer greater facilities: Divide the integuments in the median line, and separate and hold aside the sterno-hyoidian muscles, so as to expose the isthmus of the thyroid gland; under this pass a blunt needle, carrying a double thread, so as to make two ligatures, between which the isthmus is divided; the left lobe of the thyroid gland is separated by a blunt instrument, which, passing close to the trachea, must necessarily encounter the œsophagus, which is opened in the usual way.

Before, however, proceeding to any operation in these cases, it would certainly be very advisable to exert a greater degree of ingenuity and patience in the employment of ordinary measures, than appears to have been exerted here. Although it was supposed that the action of vomiting might be beneficial, only one emetic dose, and that of ipecacuanha and sulphate of zinc, was administered. To extract the body no other instruments were used but a looped wire and curved forceps, and yet there was sufficient space to enable a flexible catheter to be passed down into the stomach. The well known history of the manner in which a fish-hook was extracted from the œsophagus, shows what a certain degree of ingenuity may accomplish in these cases. In this case it seems to us that a bag of caoutchouc attached to a tube could have been introduced empty beyond the gold plate, then distended so as to loosen any entanglements formed by it with the walls of the œsophagus, when it would be removed with the withdrawal of the instrument. In the *Memoirs* of the Academy of Surgery of France, vol. iii. (Paris, 1743), some most curious cases of foreign bodies arrested in the œsophagus are given, and in some of them sponge was used successfully, to distend the canal and thus loosen the body and make it fall into the stomach. It is but right to state here that Mr. Gull, who refers to this memoir, is incorrect in his declaration that in no single instance does any attempt appear to have been made or contemplated to cut into the pharynx or œsophagus, and relieve the patient. The operation is discussed, and two very remarkable observations are given to show how the œsophagus has been largely opened, and yet the patient has recovered. (*Loc. cit.*, p. 151 *et seq.*)

This operation of œsophagotomy, or pharyngotomy, must be regarded as one never to be performed, unless absolute necessity calls for it; the ancient plan recommended by Aëtius for the removal of foreign bodies arrested in the œsophagus, we had rather see adopted in general practice.[1] Before proceeding to active measures in these cases, the surgeon should make very sure that there is undoubtedly a foreign body lodged in the gullet, for the sensations of the patient himself are by no means to be trusted. We know of an instance where no less distinguished a surgeon than M. Nélaton made several ineffectual efforts to remove from the pharynx, with forceps, the great horn of the hyoid bone. The patient was sure that a piece of bone had become arrested there, and the finger pushed deeply into the throat came in contact with a small resisting body—which ought to have been there, and which fortunately remained.

X. *Contributions to the Practical Surgery of New Growths or Tumours.* Series II. *Fibro-plastic Growths.* By John Birkett.

This communication is made in pursuance of the design, announced in the last volume of *Guy's Hospital Reports*, of illustrating in a series of cases the natural history of every form of new growth which has come under observation within the walls of the hospital. In Series I. several cases of cancer were related to illustrate the progress and result of that disease. The two varieties of fibro-plastic growths are comprised in this paper—the soft, gelatinous, and rapidly growing; and the more firm, fibrous, and more slowly growing. The number of cases is, altogether, fourteen. The conclusions deduced from them, by Mr. Birkett, are the following:—

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[1] See the Medical Profession in Ancient Times, by John Watson, M. D., p. 196.

"1. That the elementary tissues comprising the fibro-plastic growths differ from those entering into the composition of the tumours called carcinoma.

2. That the natural history of the fibro-plastic growths is different from that of carcinoma.

3. That the fibro-plastic growths may recur at the primary site of the new growth, or in its immediate neighbourhood.

4. That, unlike carcinoma, there does not appear to be a disposition to the production of fibro-plastic growths in any of the viscera of the chest or abdomen.

5. That when secondary growths are developed in these organs, it will probably be carcinoma.

6. That the glands of the lymphatic system do not become secondarily involved in disease with the fibro-plastic growths, as they do in carcinoma.

7. That amputation of a portion of a member will not in every case prevent the reproduction of fibro-plastic growth in the stump, even although a joint intervene between the seat of the primary development and the stump.

8. That excision of a primary fibro-plastic growth may be undertaken with a better chance of the eradication of the disease than follows the removal of carcinoma.

9. That by the reproduction of a fibro-plastic growth, and as the result of changes taking place in the tumour itself, death may ensue without the viscera being affected by any organic disease.

10. That the progress of the disease is slower than carcinoma; that is, that the time occupied by the development of the recurrent growths may extend over a very long series of years.

11. That the fibro-plastic growths are developed at a somewhat earlier period of life than carcinoma.

12. That they appear to be closely in relation with fasciæ, and very often to spring up in those parts of the body where the fascial envelops or tendinous aponeuroses are developed in the most prominent manner.

13. That they always form circumscribed lobes or masses, and never infiltrate the tissues of the organs of the body like carcinoma so frequently does."

This communication is accompanied by two plates, the second of which, representing the dissection of an amputated leg, illustrates remarkably well how these growths are connected with the fasciæ and the tendons of muscles.

XI. *Contributions to Dental Pathology.* By S. JAMES A. SALTER, M. B., F. L. S., &c.

These contributions are three in number. The first is upon the Shedding of Teeth and Exfoliation of the Alveolar Processes, consequent upon the Eruptive Fevers.

Mr. Salter states that, during the past few years, he has had under his care a number of cases in which necrosis and exfoliation of the alveolar processes of the maxillæ, accompanied by shedding of the contained teeth, has been one of the secondary consequences resulting from attacks of the eruptive fevers—scarlet fever, measles, and smallpox. After scarlet fever there were some eight or ten cases, after measles three or four, and after smallpox only one. Though following different forms of eruptive disease, they were all so singularly uniform in their origin, course, and entire history, that, in Mr. Salter's opinion, they would seem to have a generic identity.

In all these cases the first evidence of exfoliation was always apparent within eight or nine weeks after recovery from the eruptive fever, usually within four or five. It was never preceded by pain or swelling, or accompanied by periosteal abscess; the suppuration always occurred at the part where the gum peels from the alveolus, which appears to be the simple method of exposing the dead bone. Whichever jaw has been the subject of exfoliation, it usually occurs on both sides. It occurs in patients about five or six years of age, during the time that the most active tooth-development is going on in the jaws. In every instance the temporary molar or molars, and the corresponding bicuspid or bicuspids, with their containing alveoli and loculi, have been the parts to suffer. In no one case was the shedding of teeth confined to the temporary set; the successional (bicuspids) have always been involved, and shed also.

The occurrence of these cases is explained by Mr. Salter as depending upon the fact that the teeth are modified papillæ, are members of the tegumentary system, and that the *materies morbi* in the eruptive fever affects them by virtue of their being dermal or tegumentary organs. Blighted and destroyed, they light up in the alveolar periosteum an inflammation which, while it is destructive, is curative; while it destroys the bone, it accomplishes the casting off of effete and dead organs.

The second contribution is on the subject of Warty Teeth. The teeth sometimes, though very rarely, become *warty*, that is, have compound papillary projections attached to them. The explanation of such specimens is obvious: the superficies of a tooth is the part first formed, and it corresponds in every particular in shape with the original formative pulp, so that it follows that the pulp must in these cases have borne the same relation to a normal pulp as a tegumentary wart does to normal papillary structure.

It is worthy of remembrance by the surgeon, that teeth occasionally exhibit such change of form and aspect that they can no longer be recognized as teeth, and that they may be mistaken for necrosed bone. In one of the cases recorded by Mr. Salter, an eminent metropolitan surgeon, in order to extirpate what appeared to be a piece of porous bone denuded of periosteum, removed the angle of the man's jaw (a young man, twenty years of age), and thus put an end forever to efficient mastication, when the whole of the ungainly mass could have been readily extracted with a pair of forceps.

The third of these interesting contributions is on Polypus of the Tooth-Pulp. In this affection the pulp of the tooth sprouts into a mass having very much the aspect and about the same sensitiveness as the gum. The tooth itself is never the subject of odontalgia, and is always imperfectly calcified, "presenting that peculiar globular calcification in which the substance of the dentine becomes rapidly sodden with saliva, and carious without limit from the enamel to the pulp." It is believed by Mr. Salter that the changes in the pulp—hypertrophy, with structural modification—are owing to some influence exerted upon it from the presence of the saliva.

This communication is accompanied by two lithographic plates containing numerous figures, representing warty excrescences on the teeth, and polypus of the tooth-pulp, as they appear to the naked eye, and also under the microscope. Two wood-cuts in the text illustrate the article on shedding of the teeth and exfoliation of the alveolar processes.

XII. 1. *On the Alleged Sugar-forming Function of the Liver.* 2. *The Influence of Diet on the Liver.* By F. W. Pavy, M. D., *London.*—This communication is one of exceeding interest and importance, certainly in these respects not second to any in the whole volume. The experiments detailed by Dr. Pavy, and the deductions he draws from them will aid materially in the solution of the problems that now occupy most the attention of physiologists. From the care and skill with which the experiments were evidently made, and the great number of times they were repeated, we must rely upon the results uniformly obtained by them. The deductions drawn from them are fully warranted, indeed they are forced upon us. A little reflection too will show clearly that they are not only not opposed to the facts obtained by Bernard and others, in their experiments, but entirely in accordance with these facts, and only opposed to the *interpretation* hitherto given to them.

Experiment has proved, beyond a doubt, that a large quantity of sugar is met with in the liver, and in the blood of the hepatic veins, and of the right side of the heart of an animal that has been for some time previously restricted from the ingestion of saccharine materials, *after the death of the animal*. The question Dr. Pavy desires to solve is whether sugar is natural to the right-ventricular blood of the *living animal* and to the *living liver*, for to find sugar on examining the blood or the liver after death, is no proof that it was also present during life. The results he has obtained in endeavouring to solve this question are very striking, and lead one irresistibly to the conclusion that during life sugar does not exist in the liver, but a substance which happens to be with extreme facility, by a process allied to fermentation, convertible into sugar, and which has the power to resist transformation into sugar, whilst located in the tissue of the living and healthy liver. With the destruction of life this power of resistance is at an end, and the organ then becomes speedily charged with the saccharine principle.

When blood was removed by Dr. Pavy during life from the right ventricle by means of a catheter passed into the right jugular vein, it was found to contain only the merest trace of sugar, the reaction with the Barresvil solution being sometimes so slight as to be liable to be overlooked altogether. Dr. Pavy made upwards of sixty observations to establish this fact. When in these cases the animal was killed, the blood collected after death from the right ventricle occasioned with the same reagent an abundant orange-yellow precipitate of suboxide of copper.

When an animal is pithed, and a minute or two is allowed to elapse before the chest is opened, the blood flowing from an incision into the right side of the heart will be found strongly saccharine. When the chest was instantly opened by Dr. Pavy after the pithing was effected, and a ligature placed around the base of the heart, the contents of the right ventricle were found to be free from sugar.

Having discovered that the sugar-forming substance of the liver was not transformed into sugar, whilst in contact with a ferment, when an alkali was present, Dr. Pavy immediately after death injected a strong solution of potash into the liver of a dog. The presence of sugar was in vain sought for, either in the liver or the contents of the circulatory system. Again injecting only half of a liver, in the same manner, this half contained no sugar, while the other gave the ordinary amount. When the organ was allowed to remain a few moments after death before the injection was practised, so as to give time for the *post-mortem* transformation of liver material into sugar to take place, the presence of sugar was as easily shown as if the potash had not been made use of.

Knowing how much changes partaking of the character of fermentation are promoted by an elevated temperature and checked by cold, the influence of a freezing mixture upon a piece of liver removed at once after death was essayed. When an animal was suddenly killed by the destruction of the *medulla oblongata*, and the abdomen instantly opened and a piece of liver cut off and plunged into a mixture of ice and salt—mixed half an hour before, to have it liquid and of a much lower temperature—the *post-mortem* transformation of the liver material was prevented, and an absence of sugar was observed. Bernard had noticed that if the spinal cord be divided above the origin of the brachial nerves, "a peculiar modification was produced in the liver, a sort of perversion of secretion, or rather a veritable arrest in the series of transformations that take place in the liver in order to change into sugar the albuminoid matters of the blood." (*Leçons de Physiologie Expérimentale, &c.*, Cours du Semestre d'hiver, 1854–1855, page 374.) In the experiment he relates, the animal was killed the day after the division of the cord; a decoction of a part of the liver was made at the very moment of the autopsy, and not the slightest trace of saccharine matter was detected; a portion of the same liver left to itself was taken twenty-four hours afterwards, and it contained an enormous quantity. After making an hypothesis to explain this, he makes a second one which, he adds, is more probable than the first. "This new hypothesis would consist in saying that the transformations that take place in the liver require, not only nervous influence, but also a sufficient temperature, and that the temperature of the animal (a rabbit) before you being no more than 24° (75° Fah.) at the time it was sacrificed it is not sufficient for the accomplishment of the phenomena in question. You know, in fact, that certain chemical actions cannot take place without a certain quantity of heat, and that in animals whose temperature varies, they cease when the cooling has reached a certain point, although the nervous excitability should then appear more intense, as takes place precisely in the rabbits in which we have divided the spinal cord. It may be the same for the glycogenic function; the temperature to which the animal has fallen may be no longer sufficient for determining the series of transformations that finally give sugar; and what proves that heat favours this formation is this, that after having removed the liver thus modified, if you expose it to a high enough temperature, the sugar is soon seen to appear in the tissue. *It would probably be the same if, without extracting the hepatic organ, the animal were placed in a situation where its normal temperature, which is 37 or 40 degrees* (99° or 106° Fah.) *would be maintained without allowing the cooling to take place.* If, on the contrary, the liver should be exposed to a low temperature, sugar would form therein but very slowly." (Pp. 378–9.) We have extracted the whole of the passage, for it is interesting to notice how M. Bernard's hypothesis coincides with Dr. Pavy's manner of interpreting these phenomena. The experiment suggested in the part we have italicized, was performed by Dr. Pavy, and a rabbit, after having its spinal cord divided as above said, was placed over an engine boiler where the thermometer stood at 88°. At the end of three hours the animal was killed, and the indication of sugar in the liver was as strong as if the specimen had been derived from an animal which had been suddenly sacrificed without having been submitted to any previous operation. Dr. Pavy found, also, that when the temperature of the animal was reduced by other means than by the division of the spinal cord, the same condition of the liver was met with. By oiling the coats of animals so as to deprive them of their non-conducting investment, and exposing them to cold, their temperature rapidly falls; if killed when the temperature had descended to about 70° or 80°, the liver was found free from sugar immediately subsequently to death, and became strongly saccharine afterwards, precisely as in the case of section of the cord.

With frogs, Dr. Pavy found in his experiments that when they were killed at an elevated temperature the *post-mortem* transformation of liver material into sugar takes place—as in warm-blooded animal—so rapidly, that sugar is found under the ordinary process of examination. When, on the other hand, the animal possesses a low degree of temperature at the time of death, the *post-mortem* formation of sugar is so retarded, that an examination of the liver is easily effected before a change has taken place to any considerable extent. M. Bernard, it may be interesting to state, obtained precisely the same results, and communicated them to the French Academy in March last; he attributes, however, these results to the "*ralentissement de la circulation qui est lié à l'abaissement de la température!*"

From a consideration of the facts brought forward by Dr. Pavy, we think it must be concluded with him that though the liver and the right ventricular blood are strongly saccharine *after death*, yet that this is not their condition *during life*. It would appear that there is formed in the liver a substance which is convertible with extreme facility into sugar, by a process allied to fermentation; that this substance seems to have the power to resist this transformation while located in the tissue of the living and healthy liver, but with the destruction of life this power of resistance is at an end, and the organ then becomes speedily charged with the saccharine principle. Until other facts are made known, we feel inclined to accept the conclusions of Dr. Pavy, which not only appear to be true themselves, but also enable us to explain the difference in the results obtained by other experimenters. It may be added that, in accordance with them, diabetes must be considered as dependent upon some defect in the functional performance of the processes of the liver, owing to which the substance naturally produced by it is incapable of resisting transformation into sugar, as it does under normal circumstances.

The second part of this communication is on the Influence of Diet on the Liver; and before giving an abstract of its contents, as we have just done of the first part, we will, on account of the interest now attached to the subject, recall, in as short a space as we can, the present state of the science on this point, at least so far as the influence of diet upon the quantity of sugar-transformable material in the liver is concerned. M. Bernard, in a memoir read before the Academy of Sciences, March 23, 1857, maintains that "the liver of dogs nourished exclusively with meats possesses the property, special and peculiar to that one organ, of creating a glycogenous matter analogous to vegetable starch, and having the power, as it, of becoming afterwards transformed into sugar, in passing by an intermediary state to that of dextrine. In herbivorous animals the glycogenous matter is likewise produced in the liver, but he does not doubt that some is also formed at the expense of amylaceous matters." The most important paper that has appeared in contradiction to these doctrines of M. Bernard is that of M. Sanson, entitled "On the Origin of Sugar in the Animal Economy," published in Brown-Séquard's *Journal de Physiologie*, for April, 1858. According to M. Sanson, it is established, by the results of his experiments, that the source of sugar in the animal economy is always exterior, and resides exclusively in the alimentation, whether this be of a vegetable or an animal nature. "In the normal conditions of their existence," says M. Sanson, "herbivorous animals find the amylaceous principle in the vegetables by which they are nourished, and where it is, as we know, elaborated in great abundance. They transpose it into dextrine, a part of which undergoes, in their own economy, the whole series of metamorphoses by which this principle must pass in order to serve for the support of life, and be destroyed and eliminated; the rest of this same dextrine is accumulated in their tissues, or, rather, is incessantly present, by the fact of the constant access of the blood that contains it in excess relatively to their physiological necessities. The carnivorous, in their turn, to the alimentation of which these are destined in the far-seeing economy of nature, find in this excess of dextrine the primitive element of the sugar necessary for the accomplishment of their functions, and consequently are not forced to elaborate it." (*Loc. cit.*, pp. 273, 274.)

This paper of M. Sanson was the occasion of a report to the Academy of Medicine, in which M. Poggiale, the reporter, says:—

"In the present state of the science nothing seems better demonstrated than this, that the glycogenous matter met with so abundantly in the liver of carnivorous animals is not furnished by their food. Whatever be the alimentation, whatever be the aliments on which we operate, a great quantity of sugar is constantly found in the liver, while its presence in other parts of the organism is accidental, and is only due to certain physiological conditions that can most generally be modified. The glycogenous matter is only found in the other organs of herbivorous animals when these animals are nourished with aliments rich in amylaceous substances."

The views of M. Sanson are not sustained by the experiments of Dr. Pavy, which would show that the so-called glycogene belongs particularly to the liver, and is secreted by it from saccharine, amylaceous and other principles contained in the blood circulating through its capillaries. The facts which he has brought forward, showing that sugar does not belong to the healthy liver during *life*, alter, however, the position of this subject so as to render unnecessary the discussion of whether the production of sugar results from a process of secretion or of a simple chemical transformation. Whatever in future may be definitely shown to be the particular purpose of glycogene, or hepatine, as Dr. Pavy called it with more propriety, as it is not *sugar producing*, in the economy of life, it certainly does not appear to be formed, as has been thought, for the object of transformation into sugar.

In experimenting upon the influence of diet upon the liver, Dr. Pavy found that the size of this organ is influenced to a most astonishing extent by the kind of food that is given; and that the alteration it thus undergoes is chiefly, if not entirely, due to the relative amount of hepatine present. The processes by which he obtained his results are carefully detailed, particularly the manner of collecting the hepatine, and they appear to us to be deserving of all confidence. The exact composition of hepatine he states that he is not acquainted with; and as it is a matter of some interest we will give it here, on the authority of M. Pelouse, as carbon 39.8, hydrogen 6.1, oxygen 54.1; corresponding to the formula $C_{12} H_{12} O_{12}$.

When dogs were kept exclusively on a diet of animal food, the relative weight of the liver to the animal was 1–30; and the relative amount of hepatine in the liver was 6.97 per cent. When they were kept upon a diet of vegetable food the relative weight of the liver was 1–15; and the quantity of hepatine was 17.23 per cent. When they were fed upon animal food with an admixture of sugar, the relative weight of the liver to the body was 1–16½; and the amount of hepatine yielded was 14.5 per cent. Some experiments which Dr. Pavy records, that he has made upon rabbits, are strikingly corroborative of the deductions he has drawn from the observations on the dog.

If this hepatine is not naturally formed for the purpose of transformation into sugar, the question as to what naturally becomes of it, is most interesting. Dr. Pavy believes that in its solution attention will have to be specially directed to the bile and to the production of fat, a material which is undoubtedly largely formed, particularly under certain kinds of vegetable food, in the animal system.

XIII. *On Poisoning by Nicotina, with Remarks.* By ALFRED S. TAYLOR, M. D., F. R. S.

In this communication Dr. Taylor gives the history of a case where a gentleman committed suicide by nicotina, with an account of the manner in which this substance was sought for and detected in the body, and some very interesting considerations upon its action as a poison.

The only other case of poisoning by nicotina on record, is that which occurred about eight years ago in Belgium, where a M. Fouguies was murdered by the Count and Countess Bocarmé, his brother-in-law and sister, while dining with them in the chateau of Bitremont. In that instance, M. Stas conducted the chemical investigation, and succeeded in detecting the poison in small quantity in the tongue and fauces, stomach, liver, lungs, and in a wooden plank of the floor of the room in which the deceased was sitting.

In his case, in searching for the poison, Dr. Taylor made use of the plan pursued by M. Stas, and also of that advised by Orfila. By both nicotina was detected, but that of M. Stas enabled a greater quantity to be extracted.

As to the action of nicotina in destroying life, Dr. Taylor believes that the degree of purity of the nicotina employed may, in some measure, account for the different conclusions arrived at by experimenters, some finding it to act exclusively on the muscular system, while others contend that the circulation alone is directly affected. M. Bernard, it will be recollected, found that when pure it spent its effects chiefly on the capillary circulation, while, when partially decomposed, the functions of the heart and lungs were directly affected. (*Leçons sur l'Effet des Substances Toxiques et Médicamenteuses*, p. 397.)

This paper of Dr. Taylor, as all that he publishes of the kind, is of the highest importance in a medico-legal point of view. W. F. A.

ART. XX.—*A Treatise on the Human Skeleton—(including the Joints).*—By GEORGE MURRAY HUMPHRY, Esq., M. B. Cantab., F. R. C. S., Surgeon to Addenbrooke's Hospital, Lecturer on Surgery and Anatomy in Cambridge University Medical School. 8vo. p. 620: Cambridge, Macmillan & Co., 1858.

MR. HUMPHRY, in the preface to his work upon the Human Skeleton, informs us that it has always been to him a matter of regret, that the study of the bones should be regarded as dry and tedious. In reality it is, and ought to be, one of the most interesting of all studies, essential, as he remarks, alike to the practical surgeon, and to the philosophical anatomist. Looked upon, therefore, in this light, we cannot help agreeing with the author, that the framework of the human system deserves a more minute investigation, and a more careful study than is usually bestowed upon it.

We do not intend in our brief space to enter upon any very critical examination of Mr. Humphry's somewhat voluminous work; our object is rather to draw attention to the manner in which the author himself has considered his subject, leaving to those of our readers who may be more particularly interested in the matter, the task of passing in detail the various topics considered in the book before us.